

AIRPROX REPORT No 2012101

Date/Time: 12 Jul 2012 1355Z

Position: 5226N 00020W (2nm W
Sawtry)

Airspace: London FIR (Class: G)
Reporting Ac Reported Ac

Type: Tutor T Mk1 x3 Untraced Glider

Operator: HQ Air (Trg) NK

Alt/FL: 2000ft+ NK
RPS (1008hPa) (NK)

Weather: NK CLBC NK

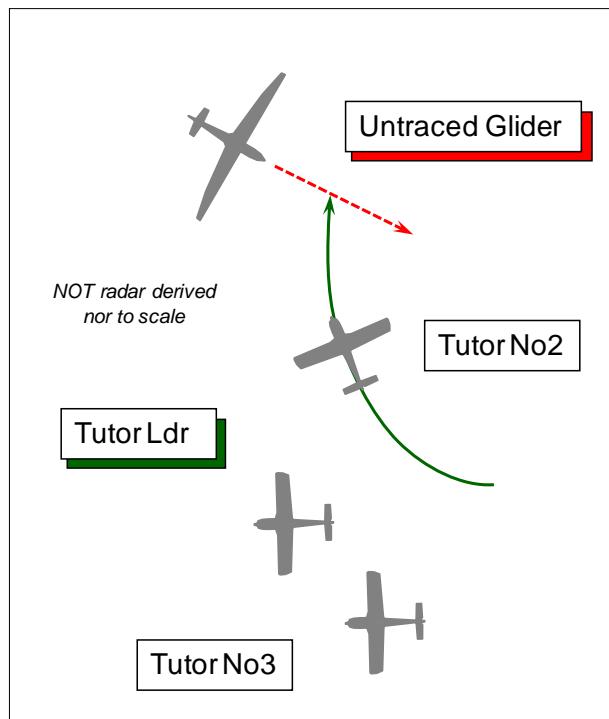
Visibility: 40km NK

Reported Separation:

50ft V/20yd H NK

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE GROB TUTOR TMk1 PILOT (TUTOR LDR) reports he was flying dual, as the leader of a 3ac Tutor formation – Nos 2 & 3 were solo students - whilst in receipt of a TS from Cambridge RADAR on 123.6MHz. An elementary surveillance Mode S transponder is fitted, but was selected ‘off’, he thought, during the period of the Airprox; TAS is also fitted.

Westbound some 2nm W of Sawtry [about 3½nm SW of Peterborough/Conington], flying above 2000ft RPS (1008hPa) some 2000ft clear below cloud, as he cleared the area visually he instructed the No 2, who was on the R, to break as part of the exercise. Immediately after the No2 broke to the R, onto a heading of about 350°, he observed a white high-wing glider flying straight and level, crossing obliquely in front of the No2 Grob from L – R and so instructed the No2 pilot to climb to avoid it. The No2 Tutor passed above the glider by an estimated 50ft, with lateral separation of about 20yd; he assessed the Risk as ‘medium – high’. The glider pilot made no attempt to avoid the No2 Tutor, suggesting that he had probably not seen the No2 Tutor. Although the No2 Tutor is fitted with a transponder, SSR was selected to ‘standby’ as SOP for formation flying. He informed Cambridge RADAR over the RT of his intention to file an Airprox.

The formation ac are coloured white; the red HISLs and landing lights were all on.

THE CAMBRIDGE RADAR CONTROLLER (RADAR) reports that when the Tutor formation departed from Wyton a TS was requested by the leader, which was provided but with reduced information due to poor radar performance. A squawk of A6172 was allocated and the Tutor formation was manoeuvring under VFR in the vicinity of Sawtry: two contacts were observed, one 2nm NE and one 2nm S of the formation - TI was passed. Later at 1410, the Tutor leader reported an Airprox with a glider that occurred 15min earlier in the vicinity of Sawtry.

UKAB Note (1): LATCC (Mil) RAC report that after viewing numerous radar recordings they were able to identify the lead Grob Tutor from the ac's Mode S transponder, but none of the other formation elements are evident. There are numerous single ‘pop-up’ primary radar contacts that appear momentarily during the sortie, but the glider cannot be positively identified on radar. Consequently, the RAC have been unable to trace the reported glider whose identity remains unknown.

Recorded radar does not show the No2 Tutor breaking away at any point but a formation re-join might have occurred at 1358:15, 1¼nm SSE of Sawtry when the lead Grob is shown level westbound indicating 3300ft Mode C (1013hPa). Later, at 1400:00, the lead Grob is shown westbound passing S abeam the reported Airprox location at 3200ft Mode C (1013hPa), with a primary contact to the N which then fades. Consequently, the Airprox is not evident on recorded radar data at the reported location/time.

ATSI reports that the Tutor formation of three ac was operating on a VFR flight that had departed from Wyton and was in receipt of a TS from Cambridge RADAR on 123.600MHz. The glider could not be identified. ATSI had access to RT recordings from Cambridge RADAR, area radar recordings and written reports from the pilot of the Tutor Leader and the Cambridge RADAR controller.

The Cambridge METARs:

1350Z 20008KT 150V240 9999 SCT048 19/09 Q1011=
1420Z 20008KT 140V270 9999 SCT048 19/08 Q1011=

At 1351:09 the Tutor Leader is shown on radar shortly after departure from Wyton, 1.6nm W of the A/D. At 1352:40, the Tutor Leader contacted Cambridge RADAR requesting a TS, informing the controller that the formation would be operating between 2000 - 7000ft to the W of Wyton for 30min. A squawk of A6172 was allocated and a reduced TS, due to radar performance, was agreed. At 1353:32, the Tutor formation was tracking NW. At 1356:10, the Tutor Leader was informed of unknown traffic 1nm S of the formation, tracking N. At 1357:10, the Tutor Leader informed Cambridge RADAR that he was visual with the traffic. At 1358:20, the Tutor Leader was informed of unknown traffic 2nm NE of the formation and further traffic to the W.

At 1410:40 the Tutor Leader was informed by the Cambridge Radar controller that there was, "*unknown traffic southwest of you range 3 miles manoeuvring no height possible glider*". The Tutor Leader replied that he was looking and added, "*..be advised I'll be..submitting an Airprox for about 15 minutes ago when we came very close to one*".

The written report from the Tutor Leader stated that, just before the Airprox, the No 2 Tutor broke R and immediately after the break, the Tutor Leader observed a glider directly in front of the No 2 Tutor. The Tutor Leader instructed the No 2 Tutor pilot to climb and the No 2 Tutor passed above the glider by an estimated 50ft.

Between 1355 and 1410:40, the Cambridge RADAR controller issued appropriate and timely traffic information to a number of aircraft on frequency including information on primary returns that were believed to be gliders.

At 1356:58 a primary contact can briefly be seen [on the area radar recording] 1.2nm to the N of the Lead Tutor. Between 1357:15 and 1357:56 an intermittent and erratic primary contact can be seen in the vicinity of the Tutor Leader – at first on the Tutor Leader's left hand side at a range of 0.6nm and then, after the Tutor Leader completes a right hand turn, on the right hand side of the Tutor Leader at a range of 0.7nm. A third primary contact can be seen at 1408:05, opposite direction to the Tutor Leader at a range of 0.4nm. It is possible that one of these primary contacts correlates with the glider reported by the Tutor Leader, but it is also possible that one or all of the contacts are associated with one of the other Tutors in the formation.

Cambridge ATC advise that their primary radar is often suppressed to a greater or lesser degree in order to filter out clutter which can be quite extensive. Radar services in the NW of the area are sometimes limited due to poor cover. The traffic information that was passed to Tutor Leader on other aircraft was based on secondary radar information – it is unclear whether the primary contacts referred to above were visible to the Cambridge RADAR controller. The Tutor Leader reported the Airprox 15min after it happened, as a result it is difficult to assess whether any of the primary contacts seen are related to the Airprox. The Airprox was reported as being with Tutor 2 which was

not displaying a squawk – there is no positive indication on radar of the position of Tutor 2 and it is possible that the primary returns seen in the vicinity of Tutor Leader in fact belong to Tutor 2.

Although the Cambridge RADAR controller did not pass traffic information on the primary returns in the vicinity of the Tutor Leader at the time of the Airprox, appropriate, relevant traffic information was previously passed to the Tutor Leader and other aircraft on the frequency. It is likely that the Cambridge RADAR controller either did not notice the primary returns in sufficient time to pass TI or the returns were not visible on the display due to the limitations of the Cambridge SRE.

The Airprox occurred in Class G airspace. Although Controllers providing a TS are required to pass TI and update it if it constitutes a definite hazard, workload and RT loading may reduce the ability of the controller to pass TI. Ultimately, the responsibility for traffic avoidance rests with the pilot.

The Airprox occurred in Class G airspace when the No 2 Tutor came into conflict with an untraced glider.

Due to the lack of precise information regarding timing and the unknown identity of the primary returns involved it is not possible to determine the exact geometry of the encounter.

HQ AIR (TRG) comments that several factors indicated an increased risk of encountering glider traffic, such as the TI regarding gliders in the vicinity, and the ‘Reduced Traffic Service’ being provided, but continuing the sortie in these circumstances was not unreasonable. Whilst the Tutor formation had employed every means at their disposal, including TAS, they were still reliant on ‘see-and-avoid’ to avoid an apparently non-transponding and hard-to-see glider. Air Command and Defence in general, are increasingly adopting systems like TCAS, TAS and FLARM to enhance ‘see and avoid’, and FLARM is under consideration for the Tutor fleet; the glider may or may not have been FLARM-equipped. Even with such equipment fitted, the likelihood remains of encountering traffic that is not detectable and which may not be easy to spot visually, as well as such equipment not being compatible with formation flying. Mandated compatible electronic conspicuity is supported by military operators in principle, but the current CAA stance, based on the impracticality of such a policy, is recognised. The controller’s job was made more difficult by the need for the formation wingmen to operate their transponders in standby, which is due to the nuisance effects on the leader’s TAS and the controller’s display. Fundamentally, the incident highlights the need to maintain a routine lookout to clear the flight path even with TAS fitted, particularly when required to focus elsewhere, such as on a formation leader.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included a report from the Tutor formation leader, transcripts of the relevant RT frequencies, radar video recordings, a report from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

It was unfortunate that it had not been possible to identify the pilot of the glider involved; the paucity of radar data had not helped here. However, the Board concluded there was sufficient information available to the Members on which to base an assessment of the Cause and Risk. A GA glider pilot Member observed that the lead Tutor pilot had reported seeing a high-wing glider; however, there are not many high-wing gliders flying in the UK and a mid-wing configuration was more common. Moreover, it may be that the reported glider pilot was on a cross-country task and could have been based a long distance from the Airprox location, adding to the difficulty of identification.

The HQ Air (Trg) Member explained to the Board the complexities of lookout when formation flying and the inherent responsibility of the formation leader to clear his whole formation’s flight path. Here, the HQ Air (Ops) Member stressed the leader was teaching a formation ‘emergency’ break procedure and it was the formation leader’s responsibility to clear the airspace into which the No2 would fly before he ordered the No2 Student to ‘break’. Up until this point the No2 student pilot

would have been concentrating on his formation position and would not have been able to clear his intended flightpath himself, before the leader called for the 'break'. The Tutor leader's frank account shows that he had not seen the glider before he instructed the student to break; it was not until after the No2 was turning away to the N that the leader saw the glider and instructed the student pilot to climb above it.

Although the Tutor leader had wisely supplemented his lookout with a radar service from Cambridge RADAR, the ATSI report shows that the controller had not been able to forewarn the formation of the presence of the glider beforehand under the reduced TS that obtained. Members were well aware of the difficulties of detecting gliders visually as well as on radar and the HQ Air (Trg) Member had commented that gliders are rarely equipped with transponders, which would have aided the glider's conspicuity to the Tutor's TAS and to RADAR; in the Command's view, the Risk of airborne conflict in this scenario could only be mitigated further by the mandatory fitment and operation of some form of electronic conspicuity. A GA Member stressed that this Airprox occurred in the 'see and avoid' environment of Class G airspace where collision avoidance is predicated on the pilot seeing other ac in sufficient time to avoid them safely. There are a number of technical and interoperability issues currently associated with electronic conspicuity and, in the GA Member's view, mandating the fitment of such electronic equipment is not helpful or desirable. Nevertheless, the HQ Air (Trg) Member reinforced the Command's view, that an electronic means of enhancing ac conspicuity with, for example an SSR transponder, would assist pilots flying ac equipped with TCAS I/II and assist controllers in detecting gliders.

An Advisor pointed out that this Airprox occurred at the periphery of Cambridge ATC's radar coverage and the reduction in the number of LARS Units is significant. The MAA Advisor pointed out that as airborne collision is one of the top five Risks, the limitations of reduced radar coverage and the availability of a radar service must be taken into account by the responsible Duty Holder. Allied to this topic, the USAFE-UK Advisor pointed out that although Lakenheath ATC is not a notified LARS Unit an informal arrangement does exist for the provision of a radar service to Wyton-based Tutor aircrew who might usefully utilise that radar unit as an alternate source for the provision of a radar service, whenever Lakenheath ATC's traffic loading permits. The Board concluded, however, that in the circumstances RADAR could not have been expected to detect the glider and agreed that this Airprox had resulted because the Tutor leader instructed the No2 to break into conflict with the untraced glider, which he had not seen.

Turning to the assessment of Risk, a GA Member opined that if the No2 Tutor had passed as close to the unknown glider as the formation leader had reported - 50ft vertically and 20yd horizontally, then the glider pilot would almost certainly have heard the aeroplane as it overflew his glider, prompting the glider pilot to look for the No2 Tutor and file an Airprox Report. It was stressed that modern high-performance gliders can reach wingspans of 30m – broadly equivalent to that of a B737 (28.3m to 34.3m span depending on the variant) - so unless the observer is familiar with the type and size of the glider, judging separation when suddenly confronted with such a large ac can be difficult. However, there was no reason to doubt the veracity of the Tutor leader's report and Members agreed that at close quarters, with only the Tutor formation leader apparently aware of the conflict, this was a Risk bearing Airprox. On the basis of the lead Tutor pilot's report alone, therefore, the Board concluded that an actual Risk of collision had existed in the circumstances conscientiously reported here.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tutor leader instructed the No2 to break into conflict with the untraced glider, which he had not seen.

Degree of Risk: A.